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AUTHOR Konczak, Lee J.; Dossett, Dennis L.
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ABSTRACT

This study examined the relative effectiveness of different media in presenting modeling stimuli to adult trainees in a supervisory skills training program and assessed their satisfaction with the training and their performance. Eighty undergraduate students were randomly assigned to one of four conditions--audio only, text only, audio plus text, or video plus audio--for training which focused on developing their skills in coaching an employee for improved performance. A videotape with or without the video image and a typewritten transcript of the videotape were used in different combinations to present the training, which consisted of an introductory discussion of coaching by a trainer, a modeling example in which a supervisor coached an employee using six key behaviors, and a group discussion in which the trainer and a group of trainees (actors) discussed and critiqued the model's use of the key behaviors. It was found that all four conditions were equally effective in terms of learning recall, although audio alone was found to be superior to video plus audio in terms of actual use of the newly acquired supervisory skill. Nonverbal behavior was not affected by the media, nor were there any significant differences in training satisfaction as a function of the media used. A 27-item reference list is provided. (RP)

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Media Effects in Behavior Modeling Training

Lee J. Konczak Dennis L. Dossett

University of Missouri - St. Louis

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Media Effects in Behavior Modeling Training

Lee J. Konczak Dennis L. Dossett

University of Missouri - St. Louis

Abstract

Eighty undergraduates were exposed to four behavior modeling media (Audio Only, Text Only, Audio + Text and Video + Audio) in a training program teaching superviory skills (employee coaching). Audio Only produced significantly higher ratings of trainee key behaviors than those in the Video + Audio condition. There were no differences in nonverbal behavior, as predicted, nor were there differences in trainee satisfaction. Performance (verbal behavior) was also greater given a Different Problem (generalization condition) than that in a Same Problem condition. There were no differences for nonverbal behaviors and satisfaction for problem type. Results are interpreted in terms of task-appropriate processing with suggestions for use of media in behavior modeling training for supervisory behaviors.

Media Effects in Behavior Modeling Training

Numerous studies have demonstrated the effectiveness of behavior modeling in training skills such as dealing with problem employees (Latham & Saari, 1979), giving appraisal feedback (Davis & Mount, 1984), retail selling (Meyer & Raich, 1983) as well as assertiveness and counseling skills (cf., Decker, & Nathan, 1985). From an instructional design standpoint, Decker and Nathan (1985) concluded that all components of behavior modeling (i.e., modeling, retention, behavioral rehearsal, feedback and transfer of training) should be included, particularly in training complex skills. One aspect of behavior modeling training that has not been investigated extensively, however, is the relative effectiveness of various media in presenting modeling stimuli. Most programs utilize a filmed or videotaped presentation of the model. However, other media such as text, audio, or combinations of text, audio and video have been used.

The role of visual media is emphasized in behavior modeling training consistent with Social Learning Theory (Bandura, 1977) which assumes that much of human learning takes place through the process of observing the behavior of others. In their early work with children, Bandura and Walters (1963) acknowledged the importance of non-pictorial presentation of models but suggested that, at least among children, direct observation is more effective than verbal description. Given the fact that verbal skills are not fully developed in children, this conclusion seems reasonable, although it may be less relevant for adult learners who possess fully developed verbal and reading skills (Gagne & Briggs, 1979). This implies that in training adults in supervisory (i.e., primarily verbal) skills through modeling procedures, actual observation of the model's overt physical behavior may be less important than exposure to the model's verbal behavior.

Goodman (1976) identified two symbol systems: (a) linguistic symbol systems (language-based), which can be organized by clearly defined syntactical rules, and (b) iconic (nonverbal) systems, which include drawings and photographs. The latter are characterized by even greater semantic ambiguity than linguistic systems. Obviously, training media vary in the degree to which they include and/or emphasize these two symbol systems. Thus, one might expect to find differential learning as a function of presentation media. Some support for distinguishing between verbal and non-verbal components in supervisory skills can be found in the interviewing literature. Rasmussen (1984) reported that nonverbal behavior had relatively little effect on selection interview outcomes; similar results were also reported by Sigelman, Elias and Danker-Brown (1980). If the verbal component is more important in training supervisory skills training as suggested, then presentation of modeling stimuli using text or audio may be as effective as videotape presentation. Such a finding would have practical implications from a cost-containment standpoint given the differential development costs associated with media such as text, audio and video. From a theoretical perspective, a better understanding of the role of media in behavior modeling would help clarify exactly what is being modeled - - verbal behavior, nonverbal or both.

Paivio's (1971) Dual Coding theory suggests that redundant coding (i.e., presentation of redundant information by means of verbal and nonverbal or pictorial codes) should lead to more effective learning. Instructional media research using a wide range of learning tasks and age groups has generally found no significant difference in learning between text, audio and pictures (Baggett, 1979; Gropper, 1966; Levin, 1973; Nasser & McEwen, 1976; Rohwer & Harris, 1975). Studies combining media have shown that adding information

redundant pictures to either text or audio presentation facilitates learning. However, combining text and audio results in no learning increment (Koenke & Otto, 1969; Levin & Lesgold, 1978; Nasser & McEwen, 1976; Peeck, 1974; Rasco, Tennyson, & Boutwell, 1975; Severin, 1967; Tennyson, 1978; Van Mondfrans & Travers, 1964). Thus, in terms of instructional media, the effectiveness of single channel sensory inputs is equivalent while multiple, information-redundant sensory channels may or may not increase learning. These same studies consistently show no incremental learning for non-redundant information presented by different media.

The authors are aware of only two studies investigating the relative effectiveness of different media in behavior modeling training. Koran, Snow and McDonald (1971) compared the effectiveness of written and video modeling presentations in training analytic questioning skills among student teachers. Their results indicated that both modeling treatments produced greater behavior change than a no-modeling control condition, but video-modeling led to significantly higher frequency, variety and quality of analytic questioning than text-modeling. Similar results were also reported for paper-and-pencil tests.

In another study, Konczak, Decker and Dossett (1985) compared the relative effectiveness of text, video and video plus text in training supervisory skills with audio present in all conditions. Results indicated that subjects in the text and text plus video conditions scored significantly higher in a role play (behavior) than subjects in the video-only condition. Further, there was no significant difference between text and text plus video, suggesting that pictorial representation in the video condition did not enhance learning over and above text (linguistic) representation. There were no significant differences on a paper-and-pencil learning (retention) test or in training satisfaction.

The results of the Koran et al. (1971) can be interpreted in terms of multiple channels, i.e., videotaped modeling used both iconic and linguistic (audio) symbol systems while the text modeling condition utilized only the linguistic. Konczak et al. (1985), however, found that a videotaped model produced significantly less learning than either (a) text + audio or (b) video + text + audio. Clearly, the multiple channels hypothesis does not explain these conflicting results. Paivio's coding redundancy postulate may not be appropriate for supervisory skills training since it is questionable as to whether information presented iconically is redundant. It seems more likely that iconic representation in supervisory skills training provides complementary information primarily concerned with nonverbal behavior. If so, one might expect more appropriate nonverbal behaviors to be learned with a video model, but the iconic presentation itself should have no effect on the learning of appropriate verbal behaviors. This interpretation is supported by recent work in learning strategies and task-appropriate processing (McDaniel & Kearney, 1984). Task-appropriate learning strategies (i.e., semantic vs. imaginal) produced more effective learning (recall) than inappropriate strategies. Similar results were reported by Nugent (1982) who found that when the training content presented by linguistic and iconic systems differed, simultaneous presentation produced less effective learning. This study is of particular interest in that videotape was used, although it presented factual information about the life of a cheetah to elementary school children.

The apparent conflict in results of the Koran et al. (1971) and Konczak et al. (1985) studies can be resolved if one assumes that the learning of supervisory skills is primarily linguistic and that audio is of critical importance in the training of such skills. The addition of audio to the iconic presentation in the Koran et al. study fostered more effective

learning. In the Konczak et al. study, however, audio was constant across all conditions. Therefore, the simultaneous presentation of task appropriate (linguistic) information (audio and text) resulted in more effective learning than that produced in the videotape condition in which both task appropriate (linguistic) and task inappropriate (iconic) information were presented. With these issues in mind, the present study was conducted to further explore the effectiveness of different media in presenting modeling stimuli. Another aim of this study was to determine whether modeled behaviors (i.e., newly learned skills) would be differentially generalized to different problems and situations, a question not addressed in either the Koran et al. or Konczak et al. studies. Nonverbal behaviors were also assessed to test for differential effects of media on such learning. In addition, trainee satisfaction with the training and their performance was assessed.

This study investigated the following hypotheses:

(1) Audio presentation of appropriate verbal behaviors for supervisory skills will result in more effective learning on paper-and-pencil (recall) test scores and ratings of verbal behavior in a role play than will text or video + audio media.

(2) Video presentation of appropriate nonverbal behaviors for supervisory skills will not result in more effective learning on ratings of nonverbal behavior in a role play than will text or video + audio media.

Method

Subjects and Design

A total of 80 undergraduate students were randomly assigned to conditions and trained in groups of two to four. Training focused on developing skills in "coaching an employee for improved performance".

Procedure

The training consisted of (a) an introductory discussion of coaching by a trainer including a review of six learning points (i.e., key behaviors), (b) a modeling example in which a supervisor coached an employee using the learning points, and (c) presentation of a group discussion in which the trainer and a group of trainees (actors) discussed and critiqued the model's use of the learning points. Appropriate nonverbal behaviors were included at each step although they were not identified as formal learning points.

In the Video + Audio condition, training information was presented via a television monitor. In the Audio Only condition, the video image was eliminated. In the Text Only condition, trainees read typewritten transcripts of the videotape. In the Text + Audio condition, trainees read each transcript while listening to the audio portion of the videotape.

As for the problem situation manipulation, half of the trainees were instructed to practice the coaching skills after training using the Same Problem (i.e., identical content) portrayed in the modeling example. The remaining subjects were provided with a written description of a Different Problem (different specific content) to practice coaching skills in order to test for generalization. Two observers scored the role plays for the presence of specific key behaviors (learning points). Similarly, nonverbal behaviors, including eye contact, gestures and posture were derived from the role play. In addition, each trainee was given a paper-and-pencil test on the learning points (retention) and a training satisfaction questionnaire. The learning and behavioral measures were counterbalanced to control for any order effects.

Measures

Training effectiveness was evaluated by utilizing multiple criteria including learning, behavior and reaction measures (Kirkpatrick, 1976). The

learning measure was a composite score based upon ratings of each trainee's attempt to write the six coaching steps from memory. Interrater reliability (rater correlation) was .79 for the composite score.

Behavioral criteria included ratings of verbal and nonverbal behavior. The verbal behavior measure was the mean rating on nine coaching interaction dimensions, each rated on 7-point scales (7 = high). The interrater reliability reliability was .98.

The nonverbal behavior measure was the mean rating on nine dimensions (5-point scales, 5 = high) including eye contact, gestures, smiling, and posture. Interrater reliability was .79 for the composite score.

Results

There were no main effects for either the media or problem situation manipulations on the paper-and-pencil learning (retention) measure, indicating that subjects acquired and retained the training information equally well in the four media conditions. The grand mean for the learning measure was 7.14 (SD = .34) with 12 being the highest possible score. The average score of 60% appears reasonable given that this measure reflects recall and not recognition.

For the verbal behavior measure, there was a significant main effect due to media, $F(3, 72) = 4.51$, $p < .006$. A post hoc Scheffé test indicated that the Audio Only condition was superior to the Video + Audio condition (Means = 3.19 and 2.39, respectively). The Text Only (M = 2.88) and Text + Audio (M = 2.66) conditions were not significantly different from any other media presentation conditions.

A significant main effect was also found for problem situation on the verbal behavior measure, $F(1,72) = 14.64$, $p < .01$. Trainees in the Different Problem condition received significantly higher ratings (M = 3.08) in their use of key behaviors (learning points) than did trainees in the Same Problem

condition (M = 2.48). There was no significant interaction between media and problem situation.

As expected, there was no main effect due to media on the nonverbal behavior measure. The video display in the Video + Audio condition did not result in greater use of appropriate nonverbal behaviors during the role-play as compared to the other media (grand mean = 4.31, SD = .37). Similarly, there were no other significant effects on nonverbal behavior.

There was no main effect due to media (or any other effect) on the satisfaction questionnaire. Overall, trainees were equally satisfied with the training experience across the eight experimental conditions (grand mean = 3.82, SD = .53).

Discussion

The purpose of this study was to determine the relative effectiveness of different media in presenting modeling stimuli to adult trainees in a supervisory skills training program. Despite the fact that visual media are assigned critical importance in Social Learning Theory (Bandura, 1977), our results suggest that adults need not actually observe the overt physical behavior of a model in order to acquire supervisory skills.

This study demonstrated that, in terms of learning (recall), text, text + audio, audio only and video + audio are equally effective. In terms of actually using newly acquired supervisory skills such as coaching, the four media combinations compared in this study were equally effective with the exception that audio alone was found to be superior to video + audio for a verbal behavior criterion. As predicted, nonverbal behavior was not affected by media. Nor were there any significant differences in training satisfaction as a function of training media.

The verbal and nonverbal behavior findings were predicted by and are interpretable according to the notion of task-appropriate strategies (McDaniel & Kearney, 1984) in terms of the characteristics of specific training media. Supervisory skills are primarily verbal in nature. Thus, when presented in the context of behavioral modeling, linguistically-oriented media produce the most effective learning in terms of reproducing key behaviors. The addition of an iconic sensory channel with nonredundant (i.e., nonlinguistic) information only served to direct attention away from the key behaviors, resulting in less effective reproduction. Similarly, linguistic channels (i.e., text and audio) redirected attention from the nonverbal behaviors modeled in the videotape resulting in no significant differences in nonverbal behaviors across the experimental conditions.

The implication is that training media should be chosen carefully on the basis of task appropriateness. In terms of behavioral modeling for supervisory skills, the use of a video image produced significantly lower incidence of key behaviors (learning points). One reason for this may simply be that supervisory skills are implicitly audionic. Another may be that learning habits vary as a function of medium. For example, textual material is implictly self-paced and can be reviewed in whole or in part at any time. Recorded training materials (either audio or video) are generally presented at a fixed rate of speed with little opportunity for immediate review. Thus, if one intends or is only given the opportunity to learn training material in one trial, one must be more attentive to the stimulus material than if there is the expectation (and habit) of being able to review particular points at will. In the Konczak et al. (1985) study, text was presented on a video monitor in order to control (i.e., hold constant) the length of exposure to the training materials. Under such conditions, audio presentation may have been more

effective because trainees were more attentive to the training material, knowing they could not re-read a portion or all of the text.

The main effect of problem type (Same vs. Different) was unexpected but interpretable in a manner similar to the task appropriateness hypothesis. That is, it appears that irrelevant information (i.e., details of a specific situation of coaching) interfered with trainees' ability to exhibit the learning points in appropriate coaching behavior relative to the Different Problem condition in which they had to generalize the principles learned (i.e., key behaviors) to a novel situation. This, after all, is the ultimate purpose of supervisory training and the final step in effectively implementing behavior modeling training (Bandura, 1977; Decker & Nathan, 1985). In terms of the present study, these findings lend credence to the viability of the experimental manipulations as reasonable and realistic operations.

Finally, the lack of any training satisfaction effects strongly suggests that the "hype and hoopla" frequently associated with commercially available supervisory training programs in terms of trainee involvement and motivation may be just that. These findings replicate those of Konczak et al. (1985) in that media effects on satisfaction (at least in the experimental context) appear to be nonexistent.

In short, we find no evidence in any of our data that supervisory skill training via behavioral modeling either requires or benefits from iconic or visual presentation. The implications in terms of both reduced developmental costs and increased learning effectiveness in behavioral modeling training programs are straightforward. Of course, such implications need to be validated in field settings with actual supervisors. In the meantime, we believe that choosing task-appropriate training methods not only has empirical support but makes good intuitive sense as well.

References

Baggett, P. (1979). Structurally equivalent stores in movie and text and the effect of medium on recall. Journal of Verbal Learning and Verbal Behavior, 18, 333-356.

Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A., & Walters, R. H. (1963). Social learning and personality development. New York: Holt, Rinehart and Winston.

Davis, B. L., & Mount, M. K. (1984). Effectiveness of performance appraisal training using computer assisted instruction and behavior modeling. Personnel Psychology, 37, 439-452.

Decker, P. J., & Nathan, B. (1985). Behavior modeling training. New York: Praeger.

Gagńe R. M. & Briggs, L. J. (1979). Principles of instructional design. New York: Holt-Rinehart.

Goodman, N. (1976). The language of art. Indianapolis, IN: Hackett.

Gropper, G. L. (1966). Learning from visuals: Some behavioral considerations. AV Communication Review, 14, 37-69.

Kirkpatrick, D. L. (1976). Evaluation of training. In R. L. Craig & L. R. Bittel (Eds.), Training and development handbook: A guide to human resource development. (pp. 18-1 to 18-7). New York: McGraw-Hill.

Koenke, K., & Otto, W. (1969). Contribution of pictures to children's comprehension of the main idea in reading. Psychology in the Schools, 6, 298-302.

Konczak, L. J., Decker, P. J., & Dossett, D. L. (1985, August). Instructional techniques and training outcomes. Paper presented at the meeting of the American Psychological Association, Los Angeles, CA.

Koran, M. L., Snow, R. E., & McDonald, F. J. (1971). Teacher aptitude and observational learning of a teaching skill. Journal of Educational Psychology, 62, 219-228.

Latham, G. P., & Saari, L. M. (1979). Application of social learning theory to training supervisors through behavior modeling. Journal of Applied Psychology, 64, 239-246.

Levin, J. R. (1973). Inducing comprehension in poor readers: A test of a recent model. Journal of Educational Psychology, 65, 19-24.

Levin, J. R., & Lesgold, A. M. (1978). Educational Communication and Technology Journal, 26, 233-243.

Meyer, H. H., & Raich, M. S. (1983). An objective evaluation of a behavior modeling training program. Personnel Psychology, 36, 755-761.

Nasser, D. L., & McEwen, W. J. (1976). The impact of alternative media channels: Recall and involvement with messages. AV Communication Review, 24, 263-272.

Nugent, G. C. (1982). Pictures, audio and print: Symbolic representation and effect on learning. Educational Communication and Technology Journal, 30, 163-174.

Paivio, A. (1971). Imagery and verbal processes. New York: Holt, Rinehart and Winston.

Peeck, J. (1974). Retention of pictorial and verbal content of a text with illustrations. Journal of Educational Psychology, 66, 880-888.

Rasco, R. W., Tennyson, R. D., & Boutwell, R. C. (1979). Imagery instructions and drawings in learning prose. Journal of Educational Psychology, 67, 188-192.

Rasmussen, K. G. (1984). Nonverbal behavior, verbal behavior, resume credentials and selection interview outcomes. Journal of Applied Psychology, 69, 551-556.

Rohwer, W. D., & Harris, W. J. (1975). Media effects on prose learning in two populations of children. Journal of Educational Psychology, 67, 651-657.

Severin, W. (1967). The effectiveness of relevant pictures in multiple-channel communications. AV Communication Review, 15, 368-401.

Sigelman, C. K., Elias, S. F., & Danker-Brown, P. (1980). Interview behaviors of mentally retarded adults as predictors of employability. Journal of Applied Psychology, 65, 67-73.

Tennyson, R. D., (1978). Pictorial support and specific instructions as design variables for children's concept and rule learning. Educational Communications and Technology Journal, 26, 291-299.

Van Mondfrans, A. P., & Travers, R. M. W. (1964). Learning of redundant material presented through two sensory modalities. Perceptual and Motor Skills, 19, 743-751.